

REMARKS

This is in response to the Office Action mailed on March 1, 2004, and the references cited therewith.

No claims are amended, canceled, or added; as a result, claims 1-94 remain pending in this application.

§102 Rejection of the Claims

Claims 1-7, 9, 18-28, 30, 39-49, 51, 60-63 and 65 were rejected under 35 USC § 102(b) as being anticipated by Clark (U.S. 5,297,150). Applicant respectfully traverses the rejection. Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ 2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). It is not enough, however, that the prior art reference discloses all the claimed elements in isolation. Rather, “[a]nticipation requires the presence in a single prior reference disclosure of each and every element of the claimed invention, *arranged as in the claim*.” *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984) (citing *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 220 USPQ 193 (Fed. Cir. 1983)) (emphasis added). Applicant respectfully submits that the Office Action did not make out a *prima facie* case of anticipation because the cited reference does not disclose each and every element of Applicants’ claims.

For example, independent claim 1 recites various aspects related to a “program slice”, including analyzing source code to determine a program slice, creating a program slice diagram, and displaying the program slice diagram. Claims 22 and 43 recite similar language to claim 1. The Office Action asserts that Clark discloses analyzing source code to determine a program slice at column 6, lines 47-67. Applicant respectfully disagrees with this interpretation of Clark. Applicant has reviewed Clark, including the cited section, and can find no reference whatsoever to a program slice as the term is used in Applicants’ claims and specification.

Applicants’ specification at page 9, lines 3-6 provides an example of a program slice, stating that a program slice “is a sequence of program statements that are influential on the value of one or more variables at given points.” Lines 11-19 provide further clarification, stating “A

program slice of a selected variable at a selected point is defined as follows: given a variable vector V in which each element of v_i is a variable to be checked and a location point of program p , program slice $SLICE(V, p)$ is the sequence of statements that influence the definition of each variable $v_i \in V$ that can reach p .”

In contrast, Clark is directed to identifying code flows that are likely to fail (see Abstract). The analysis in Clark is based on “straight code runs” which are defined as a flow that after its entry point, reaches a termination point with no branches in between (see column 4, lines 39-49. Clark then determines a complexity for each straight code run in a flow based on heuristics such as the number of logical operators, conditionals, branches etc. in the straight code run. Nowhere does Clark teach or disclose determining a sequence of statements that influence the definition of variables that can reach a point in a program.

In view of the above, Clark does not teach or disclose a program slice. Therefore, Clark does not teach each and every element of Applicants’ claims 1, 22 and 43 and does not anticipate claims 1, 22 and 43. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 1, 22 and 43.

Claims 2-7, 9 and 18-21 depend either directly or indirectly from claim 1; claims 23-28, 30 and 39-42 depend either directly or indirectly from claim 22; claims 44-49, 51 and 60-63 depend either directly or indirectly from claim 43. These dependent claims inherit the elements of their respective base claims, including the recitation of a program slice, and add further patentable distinctions. Therefore claims 2-7, 9, 18-21, 23-28, 30, 39-42, 44-49, 51 and 60-63 are therefore not anticipated for the same reasons as discussed above regarding their respective base claims.

Additionally, with respect to claims 3, 24 and 45, the Office Action states that Clark, in the Abstract and at column 4, lines 20-25 teaches that the “arcs represent data flow dependencies between the nodes.” Applicant respectfully disagrees with this interpretation of Clark. As is made clear at column 4, lines 20-29, Clark teaches that the graph reflects “control flow” and indicates the “sequence of operations that occur in proceeding through the flow graph.” Thus rather than reflecting data flow dependencies, the graph in Clark reflects code flow. Clark does not teach or disclose the use of data flow because Clark is directed to detecting complex code flows having a higher probability of failure. Applicant respectfully submits that Clark does not

teach or suggest the elements of claims 3, 24 and 45, and respectfully requests reconsideration and withdrawal of the rejection.

Applicant notes that claim 65 was rejected as being anticipated by Clark. However, claim 64 on which claim 65 depends was rejected as being obvious over Clark and Van Dyke. Applicant respectfully submits that it not proper to reject a dependent claim under anticipation when the parent claim is rejected with an obviousness rejection. Applicant respectfully requests the withdrawal of the rejection of claim 65.

§103 Rejection of the Claims

Claims 10, 15-16, 31, 36-37, 52 and 57-58 were rejected under 35 USC § 103(a) as being unpatentable over Clark and Official Notice taken by the Examiner. In order for the Examiner to establish a *prima facie* case of obviousness, three base criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir. 1991)). Applicant respectfully traverses the rejection, because the combination of Clark with the Examiner's Official Notice fails to teach each and every element of Applicant's claims.

Claims 10 and 15-16 depend from claim 1; claims 31, 36-37 depend from claim 22 and claims 52 and 57-58 depend from claim 43. Each of these dependent claims inherit the elements of their respective base claims, and recite further aspects of operating on program slices. As argued above, Clark does not teach or disclose the use of program slices. In addition, the Examiner's Official Notice does not include program slices. As a result, the combination of Clark and the Examiner's Official Notice fails to teach or disclose each and every element of Applicant's claims 10, 15-16, 31, 36-37, 52 and 57-58. Applicant respectfully requests reconsideration and withdrawal of the rejection.

Claim 66 was rejected under 35 USC § 103(a) as being unpatentable over Clark in view of the background section of Clark. Claim 66 depends from claim 64, and therefore inherits the recitation of a program slice browser from claim 64. As discussed above, Clark does not teach or suggest anything related to program slices. Additionally, the background section of Clark fails to teach or disclose program slices. Therefore, the combination of Clark and the background section of Clark fails to teach or disclose each and every element of Applicant's claim 66. Applicant respectfully requests the withdrawal of the rejection of claim 66.

Claims 8, 11, 17, 29, 32, 38, 50, 53, 59, 64, 69 and 70-71 were rejected under 35 USC § 103(a) as being unpatentable over Clark in view of Van Dyke (U.S. 5,175,856). Applicant respectfully traverses the rejection. Each of claims 8, 11, 17, 29, 32, 38, 50, 53, 59, 64, 69 and 70-71 include a program slice element, either recited directly or through inheritance from a base claim. As discussed above, Clark fails to teach or suggest a program slice. Additionally, Applicant has reviewed Van Dyke and can find no reference to a program slice. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 8, 11, 17, 29, 32, 38, 50, 53, 59, 64, 69 and 70-71.

Additionally, claims 8, 17, 29, 38, 50 and 59 each recite pruning a program slice diagram or a subgraph of the program slice diagram. The Office Action correctly notes that Clark does not disclose pruning a program slice. However, the Office Action goes on to state that Van Dyke, at column 11, lines 63-65 discloses pruning a program slice. Applicant respectfully disagrees with this interpretation of Van Dyke. The cited section of Van Dyke is directed to elimination of unnecessary code as part of an optimization process of a compiler. Nowhere does Van Dyke teach or disclose pruning a program slice diagram. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 8, 17, 29, 38, 50 and 59.

Further, claims 11, 32 and 53 each recite "performing semantic abstraction to group a subset of the nodes together based on semantic information." The Office Action correctly states that Clark does not disclose semantic abstraction. However, the Office Action goes on to state that Van Dyke, at column 15, lines 60-64 performs semantic abstraction. Applicant respectfully disagrees with this interpretation of Van Dyke. The cited section of Van Dyke merely indicates that nodes represent semantic elements of a program. Nowhere does Van Dyke teach or suggest

performing semantic abstraction to group a subset of nodes. Applicant therefore respectfully requests reconsideration and the withdrawal of the rejection of claims 11, 32 and 53.

Claim 64 recites “a block-level abstract syntax tree viewer” and a “program slice browser.” As discussed above, neither Clark nor Van Dyke teach or suggest anything related to a program slice. The Office Action asserts that Van Dyke, at column 15, lines 60-64 teaches performing semantic abstraction. As noted above, Van Dyke merely states that nodes may contain semantic elements. Van Dyke does not teach or disclose semantic abstraction, and therefore does not teach or suggest a block-level abstract syntax viewer. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claim 64.

Claims 69, 70 and 71 each depend either directly or indirectly from claim 64, and therefore inherit the elements of claim 64 in addition to reciting further patentable distinctions. These dependent claims are allowable for at least the same reasons as discussed above with respect to claim 64.

Even if the combination of Clark and Van Dyke taught or suggested each and every element of Applicant’s claims (which is not admitted), the Office Action does not provide a proper motivation to combine the references. The Office Action must show a suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to combine the reference teachings. M.P.E.P. 2143.01. The Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine the reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. In *re Sang Su Lee*, 277 F.3d 1338, 61 U.S.P.Q.2D 1430 (Fed. Cir. 2002). Mere conclusory statements do not fulfill the Office Action’s burden. *Id.* The court in *Lee* also stated that “[t]his factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority.”

With respect to the motivation to combine Clark with Van Dyke, Applicant respectfully submits that the Office Action has not provided such required objective evidence or explanation for a suggestion or motivation to combine. Instead, the Office Action merely makes the conclusory statements that the modification of Clark by Van Dyke “would be obvious because one of the ordinary skill in the art would be motivated to provide the optimizations for the entire procedures” and “efficient analysis of the program.” Applicant respectfully notes that the

motivations provided in Office Action are mere conclusory statements that are not supported with citations to the references or other objective evidence. Applicant respectfully submits that the Office Action has not provided any objective evidence or reasoning as to how the combination of Clark and Van Dyke would provide results indicated by the conclusory statements. As a result, the Office Action fails to provide any proper objective evidence or explanation of a suggestion or motivation to combine Clark and Van Dyke. Because no motivation to combine Clark and Van Dyke is present, Applicant respectfully requests the withdrawal of the rejection of claims 8, 11, 17, 29, 32, 38, 50, 53, 59, 64, 69 and 70-71.

Claims 12-14, 33-35, 54-56, 67-68 and 72-82 were rejected under 35 USC § 103(a) as being unpatentable over Clark in view of Van Dyke and Sato (U.S. 5,819,094). Each of claims 12-14, 33-35, 54-56, 67-68 and 72-82 include a program slice element, either recited directly or through inheritance from a base claim. As discussed above, both Clark and Van Dyke fail to teach or suggest a program slice. Additionally, Applicant has reviewed Sato and can find no reference to a program slice. As a result, the combination of Clark, Van Dyke and Sato fails to teach or suggest each and every element of Applicant's claims 12-14, 33-35, 54-56, 67-68 and 72-82. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 12-14, 33-35, 54-56, 67-68 and 72-82.

Further, claims 13, 34 and 55 each recite "identifying a logical category of data elements; and displaying the logical category of data elements with a cross-reference to a display of data." The Office Action asserts that Clark at column 6, lines 25-35 and column 6, lines 5-10 and 33-45 discloses the recited language. Applicant respectfully disagrees with this interpretation of Clark. Clark teaches that code may be analyzed for complexity based on logical operations in the code. Clark does not appear to analyze data elements, nor does Clark teach identifying a logical category of data elements or displaying the logical category of data elements with a cross-reference to a display of data. Applicant has reviewed Van Dyke and Sato and can find no teaching or suggestion of the recited language. As a result, the combination of Clark, Van Dyke and Sato fails to teach each and every element of claims 13, 34 and 55. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 13, 34 and 55.

Still further, claims 14, 35 and 56 recite “moving the nodes and arcs in a response to a user request to rearrange the program slice diagram.” The Office Action correctly notes that Clark does not disclose rearranging a program slice diagram. However, the Office Action goes on to assert that Van Dyke at column 5, lines 5-10 discloses rearranging a program slice diagram. Applicant respectfully disagrees with this interpretation of Van Dyke. First, as discussed above, Van Dyke does not teach the use of program slices as define in Applicant’s specification. Second, the cited section of Van Dyke refers to reordering compiler generated instructions in order to optimize code generation. Van Dyke does not teach or disclose reordering nodes in a program slice diagram. As a result, none of Clark, Van Dyke or Sato teach or disclose each and every element of Applicant’s claims 14, 35 and 56. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 14, 35 and 56.

Also, claim 78 was rejected using the rejection of claim 8. However, claim 8 and claim 78 contain recite entirely different language. For example, claim 8 recites “pruning the program slice diagram” while claim 78 recites that the program slice browser “displays the directed graph in upside-down-tree layout, wherein the nodes are positioned according to a data-flow pattern.” Applicant respectfully requests withdrawal or clarification of the rejection of claim 78 in the next Office Action.

Additionally, no proper motivation to combine Clark, Van Dyke and Sato has been provided in the Office Action. As discussed above, the Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine the reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. Here, the Office Action merely makes the conclusory statements that the modification would be obvious because one of ordinary skill in the art would be motivated to “provide a method of efficient analysis of the program” and “provide the optimizations for the entire procedures.” Again the motivations provided in Office Action are mere conclusory statements that are not supported with citations to the references or other objective evidence. Applicant respectfully submits that the Office Action has not provided any objective evidence or reasoning as to how the combination of Clark, Van Dyke and Sato would provide the results indicated by the conclusory statements. As a result, the Office Action fails to provide any proper objective evidence or explanation of a suggestion or motivation to combine Clark, Van Dyke and Sato.

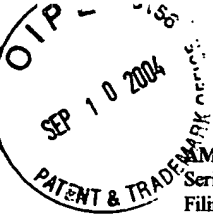
Because no motivation to combine Clark, Van Dyke and Sato is present, Applicant respectfully requests the withdrawal of the rejection of claims 12-14, 33-35, 54-56, 67-68 and 72-82.

Claims 83-94 were rejected under 35 USC § 103(a) as being unpatentable over Clark in view of Van Dyke, Sato and Palmon (U.S. 5,740,421). Each of claims 83-94 include a program slice element, either recited directly or through inheritance from a base claim. As discussed above, none of Clark, Van Dyke or Sato teach or suggest a program slice. Additionally, Applicant has reviewed Palmon and can find no reference to a program slice. As a result, the combination of Clark, Van Dyke, Sato and Palmon fails to teach or suggest each and every element of Applicant's claims 83-94. Applicant respectfully requests reconsideration and the withdrawal of the rejection of claims 83-94.

Further, claim 84 was rejected for the same reasons as claim 11. Applicant respectfully submits that claim 84 is allowable for the reasons discussed above with respect to claim 11.

Also, with respect to claim 88, the Office Action took Official Notice for the "domain specific." The Office Action provides absolutely no support for the Official Notice. Applicant respectfully traverses this Official Notice and requests the Examiner to provide a reference that describes such an element. Absent a reference, it appears that the Examiner is using personal knowledge, so the Examiner is respectfully requested to submit an affidavit as required by 37 C.F.R. § 1.104(d)(2).

Additionally, no proper motivation to combine Clark, Van Dyke, Sato and Palmon has been provided in the Office Action. As discussed above, the Office Action must provide specific, objective evidence of record for a finding of a suggestion or motivation to combine the reference teachings and must explain the reasoning by which the evidence is deemed to support such a finding. Here, the Office Action merely makes the conclusory statements that the modification would be obvious because one of ordinary skill in the art would be motivated to "provide the optimizations for the entire procedures", "provide an efficient method of analyzing the program" or "understand total operating conditions of programs." Again the motivations provided in Office Action are mere conclusory statements that are not supported with citations to the references or other objective evidence. Applicant respectfully submits that the Office Action has not provided any objective evidence or reasoning as to how the combination of Clark, Van



AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111

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Dyke, Sato and Palmon would provide the results indicated by the conclusory statements. As a result, the Office Action fails to provide any proper objective evidence or explanation of a suggestion or motivation to combine Clark, Van Dyke, Sato and Palmon. Because no motivation to combine Clark, Van Dyke, Sato and Palmon is present, Applicant respectfully requests the withdrawal of the rejection of claims 83-94.

Conclusion

Applicant respectfully submits that the pending claims are in condition for allowance, and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at (612) 373-6954 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

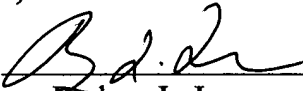
Respectfully submitted,

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Date September 1, 2004

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: MS Amendment, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 1st day of September, 2004.

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